Street Sweeping Requirements

Preliminary draft "fact sheet"

I. Introduction

The Washington Department of Ecology (Ecology) is working on reissuing the Phase I, Western and Eastern Washington Phase II Municipal Stormwater Permits. Ecology has prepared preliminary draft sections of permit language and is accepting informal comments on these sections until **11:59 p.m. December 2, 2022. Send your comments to:** https://wq.ecology.commentinput.com/?id=T3iSC

Or mail hard copies to:

Municipal Stormwater Comments
WA Department of Ecology
Water Quality Program
PO Box 47696
Olympia, WA 98504-7696

II. Proposal

Although street sweeping was initially conducted by many jurisdictions for aesthetic reasons, recent street sweeping studies that have been conducted internationally, nationally, and locally, indicate that it is an effective stormwater management tool that provides water quality benefits in receiving waters[i]. Sweepers help to address multiple pollutants by collecting the solids found on the roadway surfaces and preventing them from washing into storm drains. Street sweeping is known to be an effective source control BMP for Total Suspended Solids, trash, total phosphorous, total nitrogen, total metals, and tire wear particles (TWP), among others. Street sweeping alone is not expected to address dissolved pollutants or pollutants that bind to ultra-fine particulate matter (e.g. silts, micro- or nano-plastics), but may be used as one of several overlapping stormwater management approaches to control pollutants in stormwater discharges. As part of Ecology's efforts to better understand how to provide stormwater management of tire contaminants, including 6PPD and 6PPD-quinone we engaged partners and hired stormwater consultants to develop a technical report on the effectiveness of existing and known Best Management Practices (BMP). This report finds that street sweeping may be considered as having a high potential to be an effective source control BMP for TWP[ii].

Ecology reviewed street sweeping permit requirements in other states, US EPA's MS4 Permit Improvement Guide, as well as a number of street sweeping studies to inform potential permit requirements or enhancements/clarifications to the Stormwater Management Manuals (SWMMs). Ecology also proposed a street sweeping program at the Listening Sessions held for permit reissuance in February 2022. We heard from a majority of attendees (70%, which included Phase I and Phase II permit representatives) that they already sweep their roads most used by vehicles, as part of standard operations and maintenance programs. Another 65% of Listening Session attendees also responded that they see benefit in developing a street sweeping program in their stormwater management program.

The proposed street sweeping permit language is intended to be flexible and specific to high priority areas that will result in a water quality benefit to receiving waters. Proposed language will be added to the Operations and Maintenance section of each permit and will provide:

- a timeline to develop the street sweeping program,
- aspects of the program to document and report,
- areas of high priority for street sweeping, and
- proposed minimum frequency of three times a year, with sweeping conducted at least once before the rainy season starts (Oct. 1) and within July-Sept months.

In areas identified as high priority for the street sweeping program, we also propose a performance measure of sweeping 90% of those high priority areas each year. The proposal is not intended to reduce a permittee's existing overall street sweeping effort. If a permittee's street sweeping efforts provide equivalent or greater street sweeping frequency relative to the requirements, the permittee may continue to implement its existing program.

Additional guidance for Appendix 6 of the permits (regarding street waste disposal) and for the SWMMs will be available with the formal drafts, which we expect to release for public comment in 2023.

Additional changes to the O&M permit sections will be proposed later in reissuance.

III. What are the proposed permit changes?

The proposed permit edits and approach:

Phase I and Western & Eastern WA Phase II Permits – Operations and Maintenance section

- Phase I S5.C.10.h. (the requirement will shift the section numbering, i.e., requirement for maintenance of records would be S5.C.7.i)
- WWA Phase II S5.C.7.g (the requirement will shift the section numbering, i.e., requirement for maintenance of records would be S5.C.7.h)
- Eastern WA Phase II Permit S5.B.6.a.i.(b)– Roads, highways, and parking lots

Proposed language:

No later than July 1, 2027, develop and implement a street sweeping program to target priority areas and times during the year that would reasonably be expected to result in the maximum water quality benefit to receiving waters. Document the Annual Average Daily Traffic (AADT) of roads swept, frequency, type of sweeper, curb miles, a map of the routes, and approximation of street waste volume removed.

The following program elements shall be included:

- Apply street sweeping program to MS4 drainage areas that directly discharge to surface receiving waters[1]. Within those areas, sweep the following high priority areas, where applicable:
    - high AADT roads[iii]
    - accessible curb and gutter streets - permittees may need to implement parking restrictions or other effective methods to optimize pollutant removal
    - Areas identified with significant traffic and turning, e.g. municipal parking lots, roundabouts, high AADT intersections.
    - Commercial and industrial land use areas.
    - MS4 basins that discharge to surface receiving waters that support salmonids.
- Permittees must sweep at least once prior to October 1 each year and two additional times a year as determined by the Permittee to provide additional water quality benefit.
    - Permittees may document reasoning for alternative sweeping timing and frequency based on local conditions (e.g. climate) and pollutant loads.
    - If a permittee's existing overall street sweeping program provides equivalent or greater street sweeping frequency relative to the requirements above, the permittee may continue to implement its existing street sweeping program.
- Permittees shall annually sweep, on average, 90% of the MS4 drainage area that directly discharges to surface receiving waters.
- Permittee shall follow equipment design performance specifications to ensure that street sweeping equipment is operated at the proper design speed with appropriate verification, and that it is properly maintained.
- Permittee shall ensure proper sweeper waste material disposal and be in accordance with Appendix 6, Street Waste Disposal. [reader note: changes to App. 6 will be proposed with the formal draft permits, please provide any comments now on App 6 needed guidance.]

[1] By directly discharge, we mean MS4 drainage areas that have an outfall to surfaces receiving waters. If the MS4 drainage area includes stormwater treatment or flow control BMPs, Permittee should consider how much the BMPs are addressing the road runoff and whether street sweeping will provide additional benefit.

- Sweeper operator training – Street sweeper operators shall be trained to enhance operations for water quality benefit. [**reader note:** Language may be added to the existing O&M training requirements instead of here].

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[i] Järlskog, I., Hvitt Strömvall, A., Magnusson, K. et al (2020). Occurrence of tire and bitumen wear microplastics on urban streets and in sweepsand and washwater. Science of the Total Environment, 729. http://dx.doi.org/10.1016/j.scitotenv.2020.138950. Accessed June 2022.

Seattle Public Utilities (2018). Street Sweeping Water Quality Effectiveness Study Final Report.

Calvillo, Steven & Williams, Edward & Brooks, Bryan. (2015). Street Dust: Implications for Stormwater and Air Quality, and Environmental Management Through Street Sweeping. Reviews of environmental contamination and toxicology. 233. 71-128. 10.1007/978-3-319-10479-9_3. https://www.researchgate.net/publication/267815452_Street_Dust_Implications_for_Stormwater_and_Air_Quality_and_Environmental_Management_Through_Street_Sweeping. Accessed June 2022.

US EPA. (2010). MS4 Permit Improvement Guide. EPA 833-R-10-001. https://www.epa.gov/sites/default/files/2015-11/documents/ms4permit_improvement_guide1.pdf. Accessed June 2022.

Stormwater Action Monitoring. Redmond Paired Watershed Study – Interim Findings. March 2021. SAM Fact Sheet #23. https://www.ezview.wa.gov/Portals/_1962/Documents/SAM/FS%23023-Paired_watershed_study-interim_findings.pdf. Accessed June 2022.

Not all sources cited at this point, summary of references provided for this informal draft.

[ii] Washington State Department of Ecology. (2022). Stormwater Treatment of Tire Contaminants Best Management Practices Effectiveness. https://fortress.wa.gov/ecy/ezshare/wq/Permits/Flare/2019SWMMWW/Content/Resources/DocsForDownload/2022_SWTreatmentOfTireContaminants-BMPEffectiveness.pdf. Accessed June 2022.

[iii] Appendix 1 of each permit includes a description of high AADT or high use sites, we may use that description here to help define high AADT roadways.